



Invited letter about wound retractor advantages in thoracic surgery

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Response to: Kamiyoshihara M, Igai H, Yoshikawa R, *et al.* Advantages associated with the use of a wound retractor compared to a rigid trocar inserted via the camera port during video-assisted thoracic surgery. *J Thorac Dis* 2019;11:S468-71.

Julliard W, Krupnick AS. Improving pain after video-assisted thoracoscopic lobectomy—advantages of a wound retractor camera port. *J Thorac Dis* 2019;11:341-4.

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It is with great pleasure that we have read the two interesting papers, “*Invited editorial on: Advantages of wound retractor device versus rigid trocar at camera port in video-assisted thoracic surgery—a single institution experience*” by Kamiyoshihara *et al.* (1), and “*Improving pain after VATS lobectomy – advantages of a wound retractor camera port*” by Julliard and Krupnick (2), both addressed to our previous publication focused on advantages of wound retractor (WR) device versus rigid trocar at camera port in video-assisted thoracic surgery (3). We are grateful to the Colleagues for their suggestions and comments and take the opportunity of responding in this correspondence to the editor.

Thoracic surgery has always been characterized by severe postoperative pain due to intercostal nerve injuries. The authors, and so do we, have already showed in their editorials both mechanisms causing pain onset in video-assisted thoracic surgery (VATS) and WR functions. Conversely, as Julliard *et al.* noted, we did not address the effects of WR on chronic pain.

Acute pain is involved in early postoperative complications onset, worsening peri-operative survival rate, hospital staying length and costs. Then, acute pain can be quite indirectly recorded by analgesic consumption and clinical parameters. On the contrary, chronic pain has to do mainly with patient's quality of life (QoL), a subjective issue, and is quite hard to quantify. Usually, QoL is measured by patient's reported

outcomes (PROs) collection through paper questionnaires. Unfortunately, data gathering is often affected by poor compliance. Moreover, a considerable period of follow-up from surgery is needed. This is why we decided to focus our attention on acute pain, for a start. However, chronic pain and PROs collection are primary objectives for us. Indeed, we are part of a multicentric pilot study for electronic data collection by using an application for questionnaire administration. This smart device will allow us to obtain several information from the patients themselves about their QoL, including pain. It is our purpose to use these data to investigate WR influences on pain also over a longer period.

That being said, author's editorials are very interesting since both make an overview of the ultimate techniques for pain management in thoracic surgery and make some constructive criticisms to our paper.

As concerning limitations Julliard and Coworkers correctly underline that we did not take into account WR cost and inability to use carbon-dioxide insufflation. Given that our WR is cheaper than many disposable thoracic plastic ports, we think that cost analysis should comprise much more parameters than mere device price, including length of hospital stay and drugs consumption. Therefore, our results have already indirectly suggested a potential economic benefits of WR. As concerning the inability to adopt insufflation when using WR, unfortunately we have

no experience with this technique, excluding mediastinal surgery. This is why our data are limited to lung resections that we always perform without insufflation.

Kamiyoshihara and Coworkers underline that Dell'Amore *et al.* (4) recently showed no significant pain difference among the use of rigid metal trocar, mobile plastic trocar, and XXS-sized WR. We have read this study and congratulate the authors for their results. However, they enrolled only patients who underwent single incision thoracoscopy for malignant pleural effusion requiring drainage of the fluid and talc poudrage of the chest cavity. This procedure has shorter mean operation time (about 1 hour) and uses simple and gentle camera movements since extreme angles are not needed. This could explain why their results are different from those we found performing triportal VATS lung resection through the Copenhagen technique.

They also faced the problem of tumor cell seeding at thoracic ports depending on the use of different devices (trocar, WR, end bag, etc.). We have no data on this matter. However, in our opinion, it is more likely in case of pleural mesothelioma. Moreover, since WR was designed to prevent infections in laparoscopic surgery (5), it is supposed to keep the wound clean better than any other device.

It is our belief that WR efficacy is not a stand-alone topic. Indeed, its advantages should be addressed with a broader view. Surgical approach, operative time, devices characteristics and peri-operative analgesia, are all influencing the final outcome. This is why we appreciated both the editorials since they cast a glance at the future, introducing new devices that will contribute in pain management beyond WR.

Thoracic surgery is developing. Today, uniportal VATS is a consolidated technique that further reduces chest wall injury (6). At the same time our endoscopic instruments are more and more specified and gentle. In the editorials many smart devices have been listed such as flexible thoracoscope, silicone chest tube, new technique for tube fixation. MAGS will probably be the most attractive innovation in the near future. However, we would like to highlight that some minor precautions are still very meaningful, for the moment. Tailored analgesia at camera port intercostal space is essential as well; this is why we support the use of continuous local analgesic infusion by paravertebral catheter (7,8). This approach is aimed to act at the intercostal space where pain mainly arises and guarantees also a good analgesia of the whole chest wall thanks to drug diffusion through the paravertebral space.

Lastly, surgical technique in performing camera thoracostomy is significant as well. Skin incision location should be chosen taking into account of chest tube discomfort during hospitalization and thoracostomy should be performed with an axis allowing the most comfortable devices' manoeuvrability.

To conclude, we are pleased that the authors agree with us that WR can be a useful aid and, at the same time, that pain management is a multifactorial matter. We all agree there that best post-operative morbidity management does not result just from a single device but from an all-around peri-operative care.

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None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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